

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently amended) A control circuit for a data recorder, wherein the data recorder records data on a recording data medium by emitting a laser beam against a the recording medium and has a buffer memory for temporarily storing data, an encoder for encoding the data of the buffer memory into the recording data, and a laser drive circuit for controlling the power level of the laser beam in accordance with ~~the level of~~ the recording data, wherein the data recorder generates the laser beam at a relatively high power level sufficient to form a recording pit on a recording layer of the recording medium ~~when the level of~~ in accordance with the recording data ~~is high~~, and the data recorder generates the laser beam at a relatively low power level insufficient to form a recording pit on the recording layer of the recording medium ~~when the level of~~ in accordance with the recording data ~~is low~~, the control circuit comprising:

a laser drive circuit for controlling the power level of the laser beam;

a buffer underrun determination circuit for determining whether or not the buffer memory is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory; and

an interrupt control circuit connected to the laser drive circuit, for interrupting data recording if the laser beam is continuously generated at the relatively low power level in accordance with the recording data when the buffer memory is in the state in which buffer underrun may occur.

2. (Currently amended) The control circuit according to claim 1, wherein the recording data includes synch pattern data, ~~the power level of the laser beam corresponding to the synch pattern data~~ is generated at the relatively low power level and the relatively high power level in accordance with the synch pattern data, and the interrupt control circuit interrupts data

E. don't work
Cott.

on, off.
1, 0 (1+0)
ones & zeros
or 7/2 1+1W
? my
input / interrupt
etc
as opposed to
"1" & 1+0
0, 1 & unknown

recording when the laser beam is generated at the relatively low power level in accordance with the synch pattern data. ✓

3. (Currently amended) A controller employed in a data recorder to control interruption and restart of recording data, wherein the data recorder records on a recording medium data stored in a buffer memory by emitting a laser beam against the recording medium, the laser beam being generated at a relatively high level and a relatively low level, wherein the laser beam at the relatively high power level forms a recording pit on a recording layer of the recording medium and the laser beam at the relatively low level does not form a recording pit on the recording layer of the recording medium, the controller comprising:

E.
Cont. a buffer underrun determination circuit for determining whether or not the buffer memory is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory;

an address memory for storing at least one of an address of the recording medium and an address of the buffer memory when data recording on the recording medium is interrupted, each address indicating a location of data when the recording interruption occurred; ✓

a synchronizing circuit for sequentially reading the data recorded on the recording medium prior to the recording interruption and the data stored in the buffer memory prior to the recording interruption and synchronizing the recorded data and the stored data; ✓

restart circuitry for restarting data recording on the recording medium based on the address stored in the address memory and;

interrupt control circuitry for interrupting data recording if the laser beam is continuously generated at the relatively low power level when the buffer underrun determination circuit determines that the amount of data in the buffer memory may become null and cause the buffer memory to become empty. ✓

4. (Currently amended) The controller according to claim 3, wherein the data includes synch pattern data, ~~the power level of the laser beam corresponding to the synch pattern~~

E₁
Concl.
data is generated at the relatively low power level and the relatively high power level in accordance with the synch pattern data, and the interrupt control circuit interrupts data recording when the laser beam is generated at the relatively low power level in accordance with the synch pattern data.

5. (Original) The controller according to claim 4, wherein the data is recorded in the recoding medium in sector units, each sector including sector address data, and wherein the address memory stores the sector address data where the recording interruption occurred.

6. (Cancelled)

7. (Currently amended) A controller for a data recorder, wherein the data recorder records data on a recording medium by emitting a laser beam against the recording medium, wherein the data is formed by a plurality of sectors, each of the sectors including a synch pattern that has a predetermined number of bits ~~representing a low level~~, the controller comprising:

a buffer underrun determination circuit for determining whether or not the buffer memory is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory;

E₂
Cont.
a laser drive circuit, which controls the power level of the laser beam, wherein the laser beam is generated at a low power level and a high power level in accordance with ~~the low level~~ of the synch pattern; and

an interrupt control circuit for continuing recording until an interval between sectors appears when the buffer memory is in a state in which buffer underrun may occur and interrupting the recording operation when the laser beam is continuously generated at the low power level in accordance ~~in~~ with the synch pattern of a sector.

8. (Currently amended) A method for interrupting data recording in a data recorder to prevent the occurrence of a buffer underrun error, wherein the data recorder records data on a

recording medium by emitting a laser beam against the recording medium, and the data is formed by a plurality of sectors, each of the sectors including a synch pattern that has a predetermined number of bits ~~representing a low level~~, wherein the laser beam is generated at the low power level and a high power level in accordance with ~~the low level~~ of the synch pattern, the method comprising:

determining whether or not a buffer memory of the data recorder is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory;

continuing recording until an interval between sectors appears (when a predetermined state is detected); and

interrupting the recording operation (when the buffer memory is in a state in which buffer underrun may occur and the laser beam is continuously generated at the low power level in accordance with the synch pattern of a sector.)

9. (Previously presented) A method for interrupting and restarting data recording in a data recorder to prevent the occurrence of a buffer underrun error, wherein the data recorder records on a recording medium data stored in a buffer memory by emitting a laser beam against the recording medium, the method comprising:

determining whether or not the buffer memory is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory;

interrupting data recording if the laser beam is continuously generated at a low power level when the buffer memory is in the state in which buffer underrun may occur;

storing in an address memory at least one of an address of the recording medium and an address of the buffer memory when data recording on the recording medium is interrupted, each address indicating a location of data when the recording interruption occurred;

sequentially reading the data recorded on the recording medium prior to the recording interruption and the data stored in the buffer memory prior to the recording interruption;

synchronizing the recorded data and the stored data; and

restarting data recording on the recording medium based on the address stored in the address memory.

10. (Currently amended) A control circuit for a data recorder, wherein the data recorder records data on a recording ~~data~~ medium by emitting a laser beam against a the recording medium and has a buffer memory for temporarily storing data, an encoder for encoding the data of the buffer memory into the recording data, and a laser drive circuit for controlling the power level of the laser beam in accordance with the recording data, wherein the data recorder generates the laser beam at a relatively low power level and a relatively high power level in accordance with a synch pattern data, the control circuit comprising:

a laser drive circuit for controlling the power level of the laser;

a buffer underrun determination circuit for determining whether or not the buffer memory is in a state in which buffer underrun may occur based on the amount of data stored in the buffer memory; and

an interrupt control circuit connected to the laser drive circuit, for interrupting data recording if the laser beam is continuously generated at the relatively low power level in accordance with the synch pattern data when the buffer memory is in the state in which buffer underrun may occur.

501057/

*